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ABSTRACT

To comply with the Oklahoma legislative intent, a statewide random sample of students in grades 3, 6, 9, and 12 were tested in mathematics and reading. Students in grades 3, 6, and 9 were administered the California Achievement Tests (CAT), reading and mathematics subtests. It was concluded that: more students scored above, rather than below, their grade levels; third graders performed better in reading than in mathematics; there was a wider range of achievement in both areas in grades 6 and 9; Oklahoma students were achieving as well or better than the national norm; there was a relatively low percent of right responses in division in grade 3; and there was a high percentage of ninth graders scoring above the 12.2 grade level in reading and mathematics. Two unnormed minimum competency tests were administered to twelfth grade students: Senior High Assessment of Reading Performance (SHARP) and Test of Performance in Computational Skills (TOPICS). It was concluded that: 90 percent achieved mastery on SHARP; 75 percent achieved mastery on TOPICS; on SHARP, critical comprehension was the poorest skill area; and on TOPICS, scores were higher in basic operations, than on multiple operations, ratios, proportions, bar graphs, and scale conversions. (Results are presented in graphs). (MH)

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Oklahoma
Educational Status Study

READING and MATH

Grades 3, 6, 9, 12

School Year 1978-79

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Oklahoma State Department of Education
Leslie Fisher, State Superintendent

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Foreword

During the Fall of 1977, the State Department of Education conducted the Oklahoma Educational Status Study for the purpose of determining the achievement level of students in the public schools of the state, specifically, in the basic skill areas of reading and mathematics.

The FY-79 appropriation bill for the State Board of Education, Senate Bill No. 455, stated the intent of the legislature for another state-wide survey to be conducted. Section 2 of the Act states:

> **"It is the intent of the Legislature that the State Department of Education conduct a random-sample, statewide survey of student competencies in reading and arithmetic in grade levels 3, 6, 9, and 12 during the month of October, 1978. The results of the statewide survey, together with an analysis therefore, shall be provided to the Governor, the Legislature, the Oklahoma Education Council and to the local school districts and schools in which the tests were administered."**

In compliance with this legislative intent the State Department tested a stratified random sampling of students in grades three, six, nine, and twelve during the last week of October and first two weeks of November, 1978. Students in grades three, six, and nine were administered a standardized norm-based test in the areas of reading and mathematics. The reading test for these grades encompassed the areas of vocabulary and comprehension. The mathematics test covered the areas of computation, concepts and application.

The twelfth grade students in the sample were administered the SHARP (Senior High Assessment of Reading Performance) test and the TOPICS (Test of Performance in Computational Skills) test. The SHARP test measured the ability of high school students to read and respond to materials typically encountered by adults in their daily lives. The TOPICS test measured the ability of a high school student to undertake the tasks in computation that are required to function effectively in everyday living.

In an attempt to select the most appropriate tests for the FY-78 study, a test selection committee in the State Department of Education analyzed the test materials from several major testing vendors and subsequently selected tests produced by CTB/McGraw-Hill. In order to ensure comparability of results between the FY-78 and FY-79 studies and conserve funds, it was decided that the same tests would be used in FY-79 for grades three, six, and nine that were used in FY-78.

The results of the test administration will be categorized by grade, showing the achievement level of Oklahoma students in the particular grades as compared with national norms. In addition, the average achievement for the state as a whole will be shown. The sampling procedures utilized will not allow conclusions to be drawn about individual school sites, districts, or regions. Conclusions can only be projected to the state as a whole.

Methodology

Sampling Procedures. The sampling procedure used for the FY 79 study was essentially the same as that used for the FY-78 study. All the school districts in the state were listed by region and school size. The regions were those developed by the Department of Tourism except that a category was added for the large urban school districts. The school size grouping was based upon 1976-77 ADA figures. Small schools were those with an ADA 0-249, medium schools had ADA 250-999, and large schools had ADA 1000+.

The sample size was determined by consideration of the number needed to make generalizations about the students of Oklahoma and constraints imposed by the amount of funds allocated for the study. At each grade level (3, 6, 9, and 12) 2,000 students was set as an adequate number to allow generalization. Table 1 lists the geographic regions and the number of students projected for each school size within a region. Also, reported is the number of students actually tested in each cell.

The number of school districts needed to achieve the projected sample size was 42. In small school districts all third, sixth, ninth, and twelfth grade students were tested, while in large districts a random sample not larger than 100 students was selected at the specified grade levels. The number of students projected for each cell of the sample was determined by computing the ratio of the ADA of schools in the cell to the total state ADA and then multiplying that ratio by 8,000 (the total sample size). The school districts were listed within each cell in random order using a table of random numbers. School districts were then picked in order from the random list until the number of students needed in the cell was determined.

The sample size is entirely adequate to make generalizations about state achievement, but there are not enough subjects in each cell to draw conclusions about school districts or regions.

Data Collection Procedures. Superintendents in 34 independent school districts and principals of 8 dependent schools were contacted to request the participation of their students. These administrators cooperated by serving as coordinator or by designating a testing coordinator.

The testing was done by local school district personnel after a State Department staff member delivered testing materials and conducted an inservice session to acquaint local personnel with the purposes and procedures of the status study. There were 25 staff members of the State Department of Education who worked with the local districts, assisting with testing when requested and gathering materials to return to the department. For most districts two trips were required to provide inservice, distribute, and collect materials. Due to the late delivery date of the SHARP and TOPICS tests, some of the twelfth grade testing had to be done in early December. However, all testing in grades three, six, and nine was completed by the end of November.

When the results were received at the State Department, this report was prepared for distribution in March. Results were aggregated for the entire state. The remainder of the report will compare the achievement of Oklahoma students in reading and mathematics with the national norm group. Results will also identify areas of relative strength and areas where improvement is needed in basic skills.

Table 1

Grades 3, 6, 9, 12
2,000 students per grade

Sample for 8,000 Students

Total ADA (Best 3 of 4 Quarters 1976-77) By Region and School Size

Region	Small (0-249)	%	Sample	Medium (250-999)	%	Sample	Large (1000+)	%	Sample	Total	%	Sample
Central	5,314	0.96	77 (73)	26,153	4.74	380 (352)	107,625	19.53	1,562 (1,328)	139,092	25.23	2,019 (1,753)
Northeast	9,713	1.76	141 (139)	35,098	6.37	509 (588)	89,684	16.27	1,302 (1,053)	134,495	24.40	1,952 (1,780)
Northwest	6,549	1.19	95 (82)	15,753	2.86	229 (208)	23,907	4.34	347 (311)	46,209	8.38	671 (601)
Southeast	3,299	0.60	48 (63)	17,158	3.11	249 (212)	14,463	2.62	210 (547)	34,920	6.34	507 (822)
South Central	4,381	0.79	63 (59)	15,555	2.82	226 (287)	16,389	2.97	238 (347)	36,325	6.59	527 (693)
Southwest	6,336	1.15	92 (131)	20,833	3.78	302 (282)	36,034	6.54	523 (376)	63,203	11.47	917 (789)
Urban							96,946	17.59	1,407 (1,469)	96,946	17.59	1,407 (1,469)
TOTALS	35,592	6.45	516 (547)	130,550	23.69	1,895 (1,929)	385,048	69.86	5,589 (5,431)	551,190	100.00	8,000 (7,907)

Third, Sixth and Ninth Grades

The test series selected for testing third, sixth, and ninth grade students was the California Achievement Tests (CAT), Forms C & D, published by CTB/McGraw-Hill. In the interest of saving student and teacher time, the entire battery was not administered. Only reading and math subtests were given.

Test Selection. The test selection committee carefully considered current products from several test vendors. The selection was based on several considerations. One advantage offered by the CAT was that it was a new edition normed in 1976-77 with the fall norms that were essential for the fall test date of the status study. Other advantages were that separate levels were available for each grade; practice tests were provided; summary reports were available. One important feature was that scores were not only reported in terms of the national norms (see Figures 1-6) but were also referenced to objectives (see Figures 7-9). Thus scores could be interpreted to provide information about areas of strength and areas for improvement.

Purpose for Administering CAT. The purpose for administering a standardized achievement test was to provide information about Oklahoma students. Are they able to read and compute as well as students in other states? Many reports in recent years have suggested that students do not have the basic skills; thus, a second question focused on the basics. Are Oklahoma students lacking in basic skills?

The data were organized to provide the information necessary to answer the two questions. First, scores from Oklahoma students were compared with the national norm group (Figures 1-6 and Table 2). Second, the percentage of Oklahoma students who passed basic skills objectives were compared with the percentage in the national norm group (Figures 7, 8, 9).

A third purpose for administering a standardized test was to describe the average achievement at each grade level in reading and math. The average grade level scores for the national and state samples are presented in Table 2.

Conclusions for Grades 3, 6 and 9

1. More students in third, sixth and ninth grades scored above their grade level than below their grade level. This was true for both reading and mathematics.
2. At third grade level, a larger percentage of students scored above grade level in reading than in math, which may reflect the greater emphasis placed on reading in the primary grades.
3. At sixth and ninth grade levels there was a wider range of achievement in both reading and math than at the third grade level.
4. Students in Oklahoma were achieving the basic skills objectives as well as or better than the national norm group.
5. The relatively low percent of right responses in division at the third grade level may reflect the fact that this math skill is not introduced until later in the elementary curriculum.
6. The relatively high percentage of ninth grade students scoring above the 12.2 grade level in both reading and math reflects the fact that the tests used measured only to the 12.9 grade level and may not discriminate among students at this level as well as at lower levels of achievement.

Figure 1

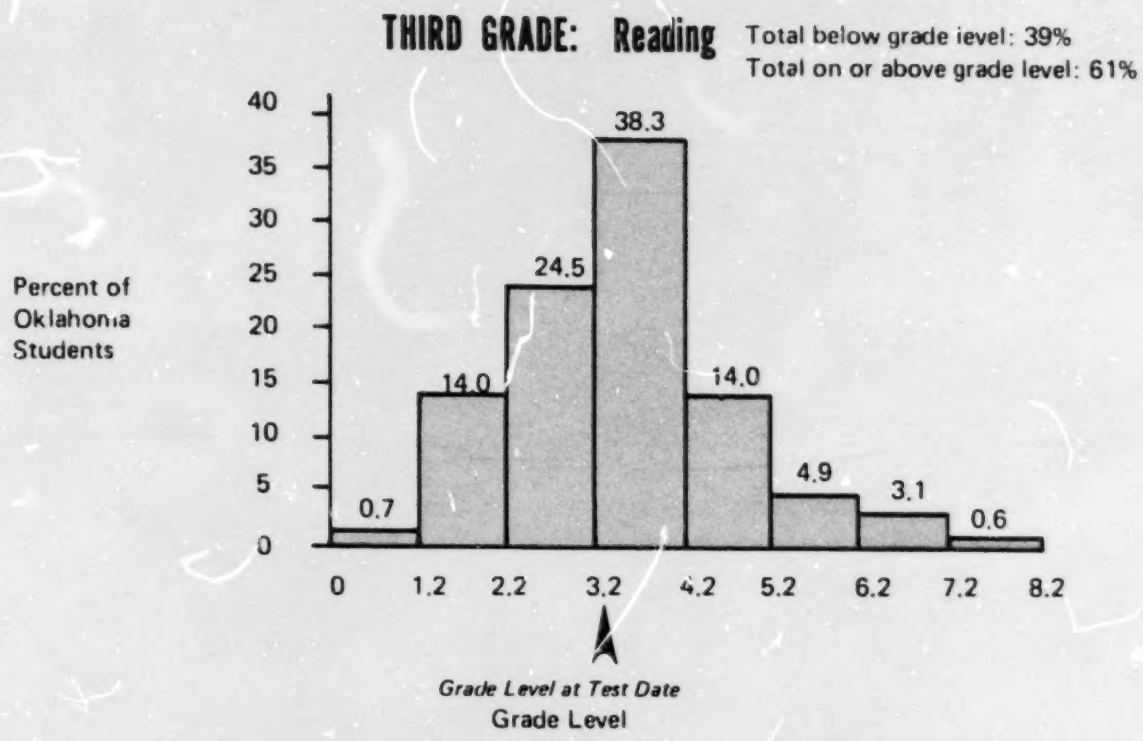

Figure 2

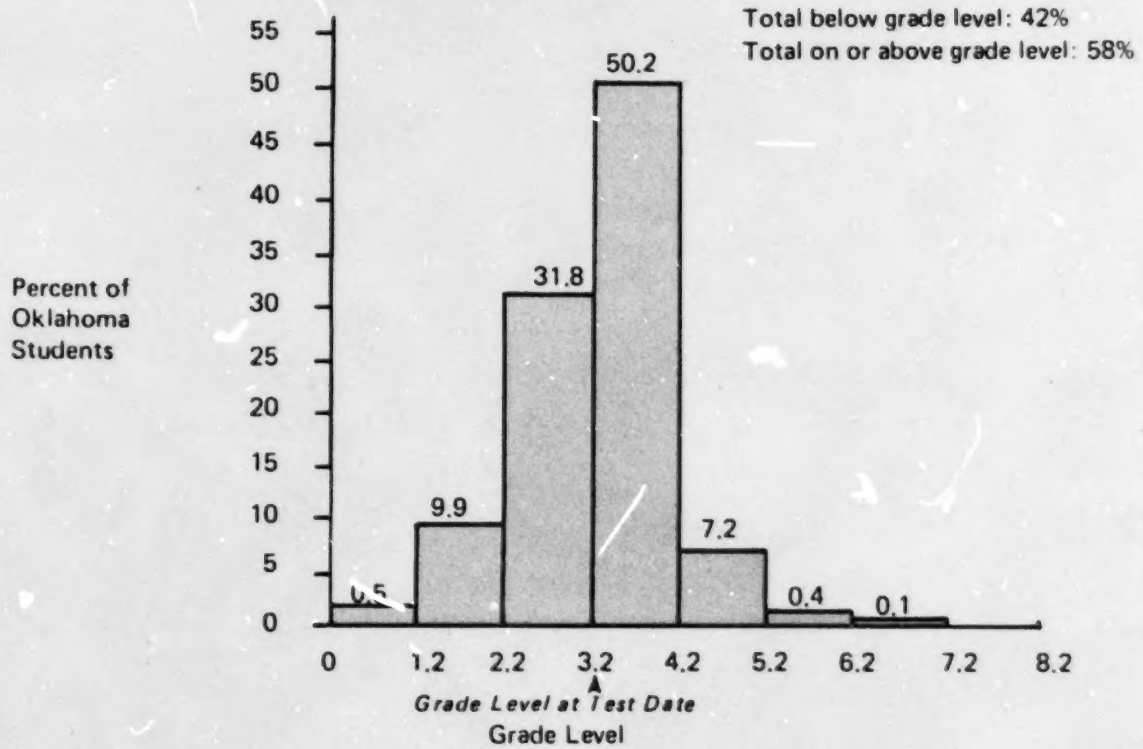

Figure 3

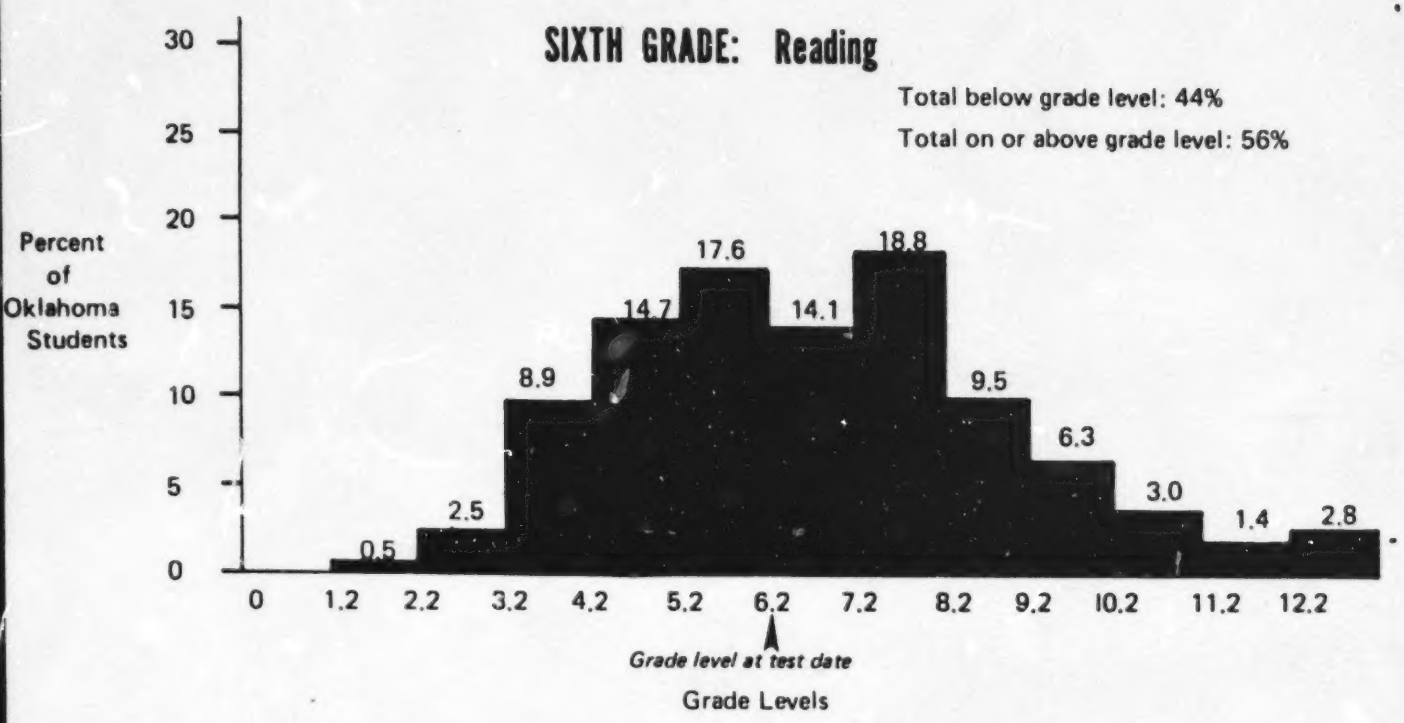

Figure 4

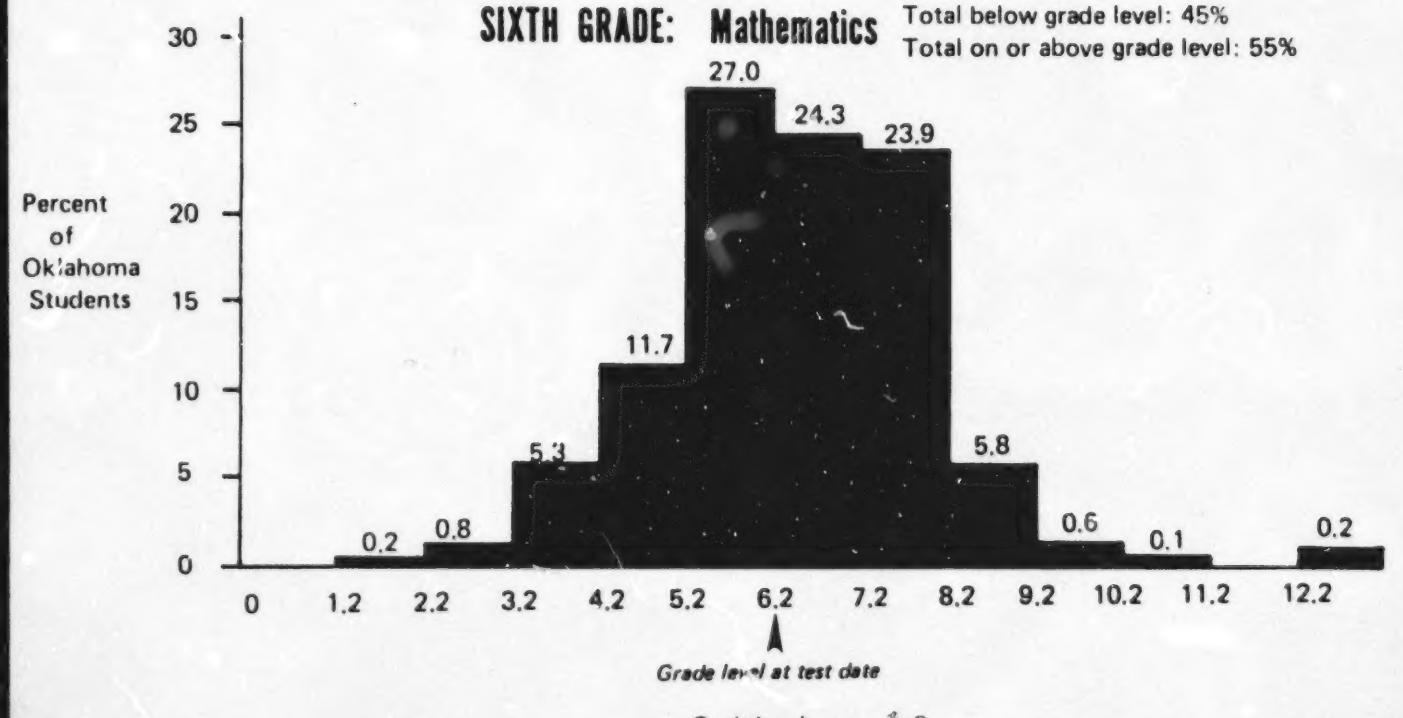

Figure 5

NINTH GRADE: Reading

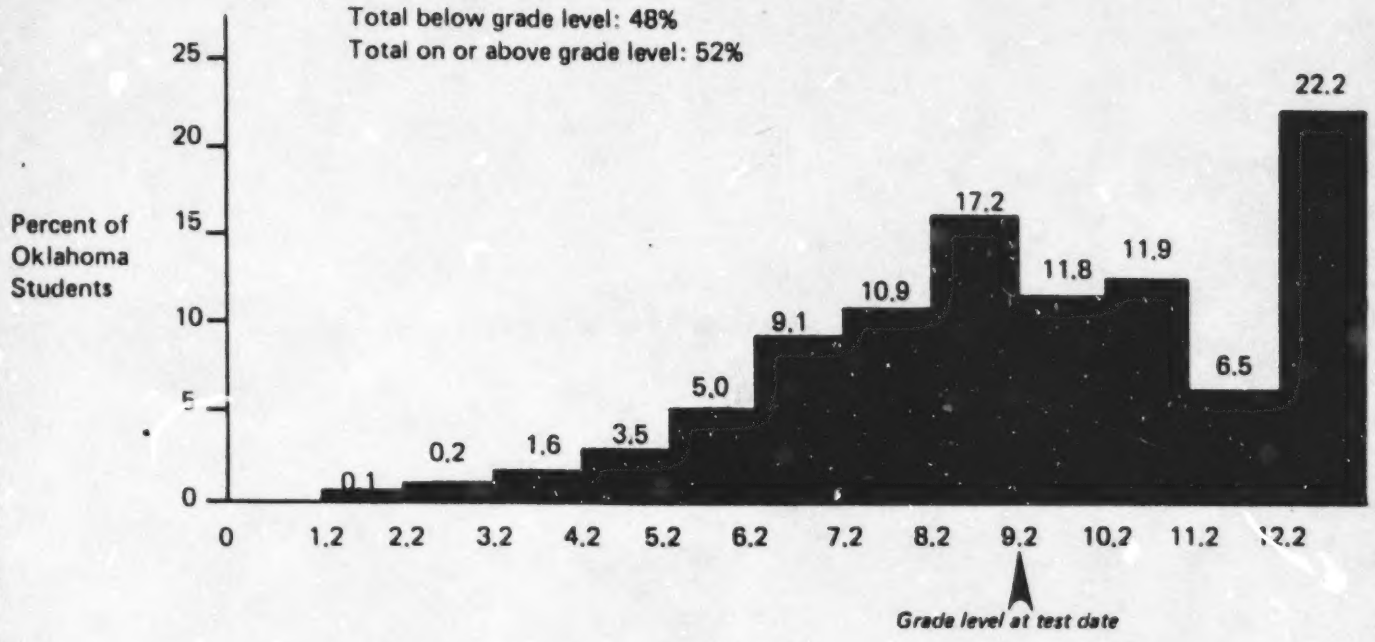

Figure 6

NINTH GRADE: Mathematics

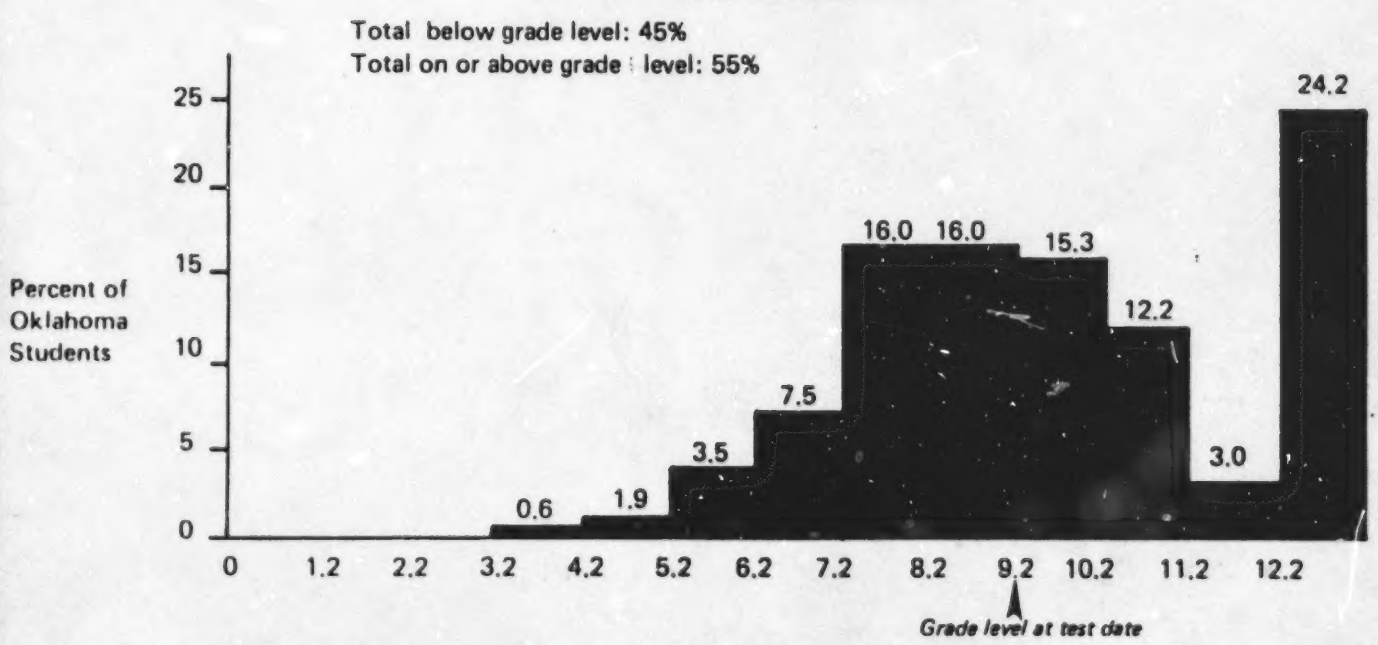

Figure 7

THIRD GRADE: Basic Skills

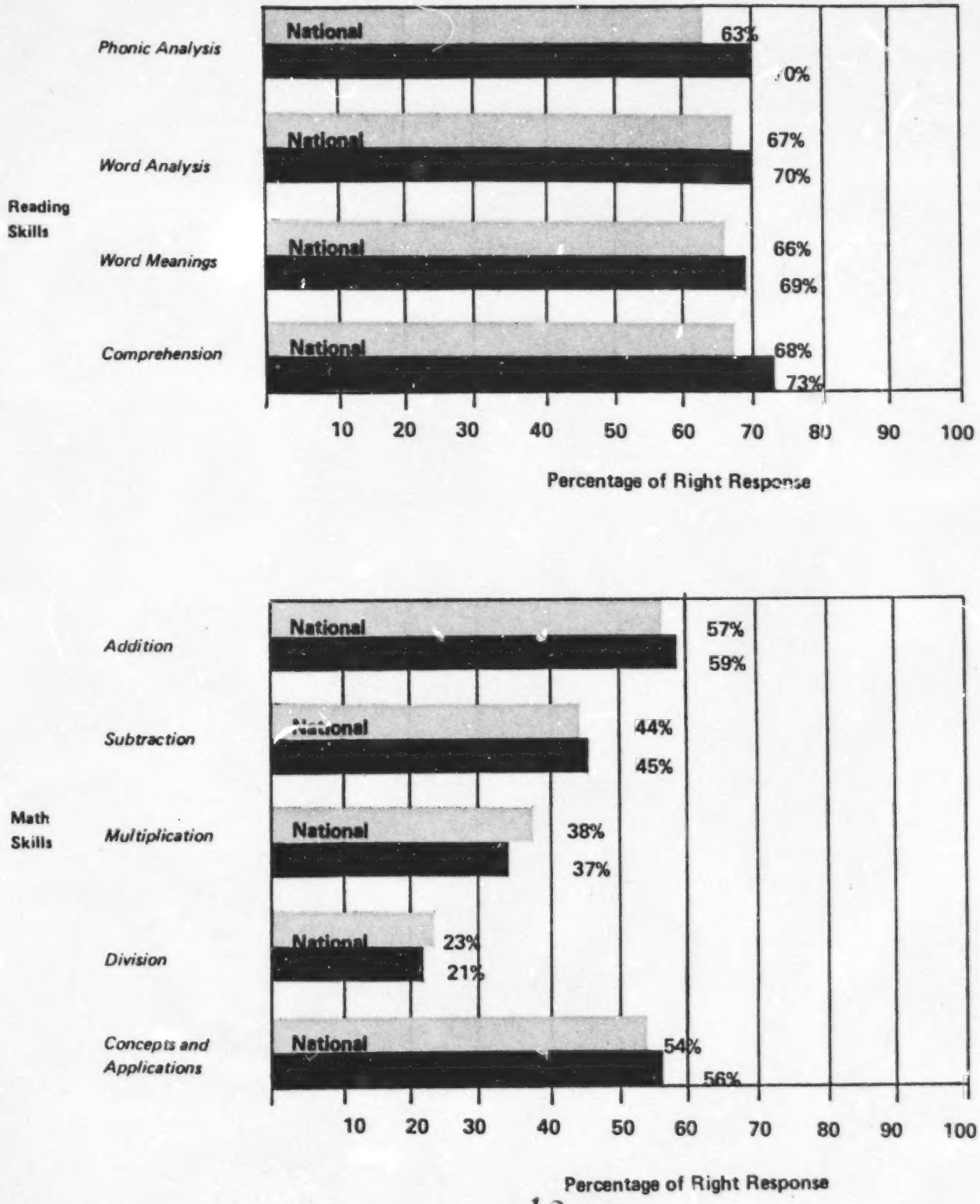

Figure 8

SIXTH GRADE: Basic Skills

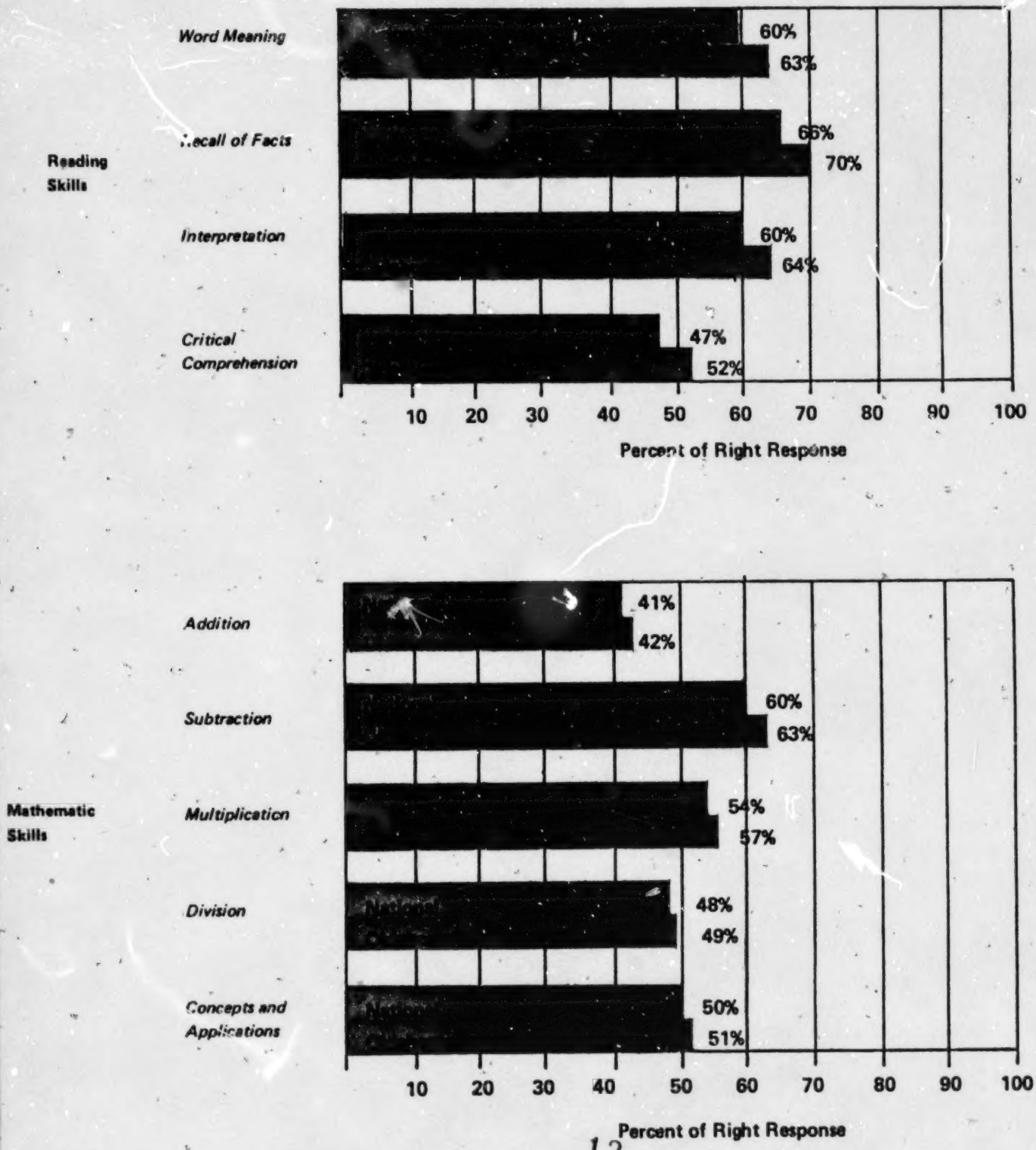

Figure 9

NINTH GRADE: Basic Skills

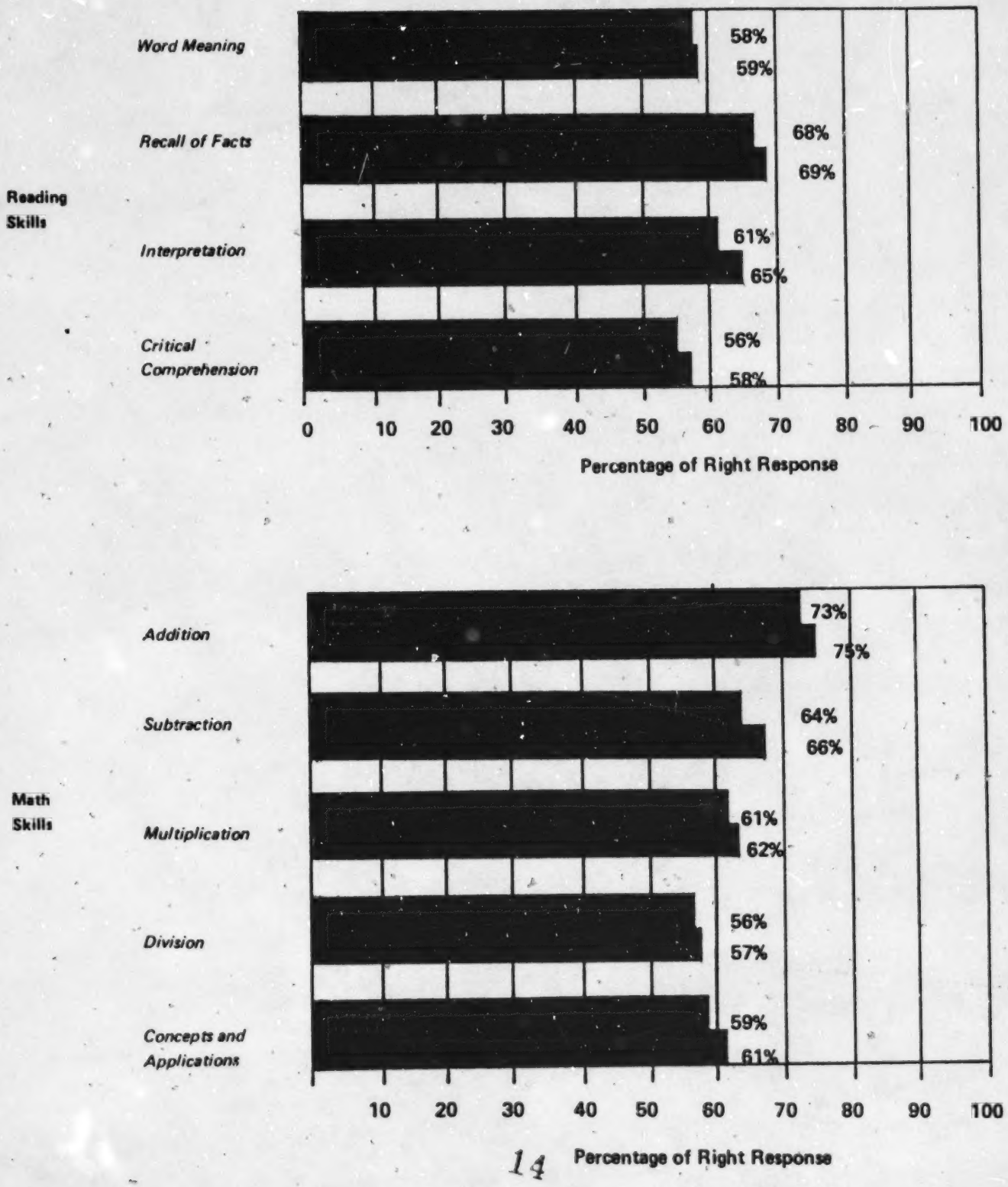

Table 2

State Average Grade Level Scores Compared With the National Norms

	Third Grade		Sixth Grade		Ninth Grade	
	Number Students	Grade Level	Number Students	Grade Level	Number Students	Grade Level
National Sample (Norm)		3.2		6.2		9.2
Oklahoma Sample						
Reading Total	1876	3.4	2077	6.6	2034	9.6
Vocabulary		3.3		6.5		9.5
Comprehension		3.4		6.7		9.9
Mathematic Total	1974	3.2	2067	6.3	2011	9.5
Computation		3.2		6.3		9.5
Concepts and Application		3.2		6.3		9.5

Twelfth Grade

The Senior High Assessment of Reading Performance (SHARP) and the Test of Performance in Computational Skills (TOPICS) were administered to 1800 senior students. The twelfth grade students were chosen by the same sampling procedures as were the students in grades 3, 6, and 9. (See sampling procedures for details on sampling.)

DEVELOPMENT OF SHARP AND TOPICS

The Senior High Assessment of Reading Performance (SHARP) is a diagnostic and evaluative instrument that measures the ability of senior high school students to read and respond to materials typically encountered by adults in their daily lives. SHARP was originally devised by the Reading Support Service Center of the Los Angeles Unified School District.

The Test of Performance in Computational Skills (TOPICS) is a diagnostic and evaluative instrument that measures the ability of senior high students to undertake the tasks in computation that are required to function effectively in everyday living. TOPICS was devised originally by the Research and Evaluation Branch of the Los Angeles Unified School District.

Both SHARP and TOPICS are now being developed cooperatively by CTB/McGraw-Hill and the Los Angeles District. The development of SHARP has included an extensive review of printed materials that students are likely to encounter in adult life. The development of TOPICS has included an extensive review of the types of problems in computation that students are likely to encounter in adult life. SHARP and TOPICS have undergone full-scale field testing, careful collection and analysis of research data on the tests, and intensive content review by instructional and evaluation experts.

PURPOSE FOR ADMINISTERING SHARP AND TOPICS

The purpose for administering the SHARP and TOPICS tests to the sample of seniors was to draw some conclusions about the

reading and computational ability of twelfth graders. Many twelfth graders do not take the ACT or SAT test as a junior or senior; therefore, it is difficult to draw any overall conclusions as to the reading and computational ability of twelfth graders as it relates to practical everyday life. It is felt that the sampling procedure utilized in this study was scientifically sound, and the conclusions and results shown are descriptive of the state's twelfth grade population in that they reflect the ability of the students to read and interpret materials and do computations they may encounter in everyday life as an adult.

OBJECTIVES OF SHARP AND TOPICS

The SHARP and TOPICS objectives were developed from studies of the printed materials that students will be likely to encounter in daily life and from field tests, data research and evaluation review. Following are brief lists of the categories of objectives measured by each test.

SHARP

Section 1 - Following Directions - deals with understanding and completing forms such as a clothing tag, social security card, telephone directory index, job application, change of address order, business letter, marriage license application, invitation, directions for hanging wallpaper, and auto loan application.

Section 2 - Getting Information - assesses the ability to read and understand written materials such as charge account agreement, newspaper article, classified newspaper ad, financial agreement card, stop payment request, package label, recipe, selections from a driver's license handbook, unemployment insurance claim, and road signs.

Section 3 - Using Maps and Forms - assesses the student's ability to read and interpret materials such as a job resume, cash register receipt, area code map, TV review, dictionary entry, magazine article, street and freeway map, highway map, tax form, and bank statement.

TOPICS

Section 1 - Measures the student's ability to obtain information and do the computations related to a recipe, theater diagram and price list for tickets, timecard, advertising rates in a newspaper, weight of equipment for a backpacking trip, parking rates at a garage, deposit slip for a checking account, highway map, and a diagram for measuring area and perimeter.

Section 2 - Assesses the student's ability to interpret and do the computations related to a tire advertisement, map of time zones in the United States, doctor's prescription, water and power bill, weather map, automobile fuel economy sticker, checkbook record, credit card statement, and readings on thermometers.

Each specific objective was tested by four multiple-choice test items pertinent to the objective. The criterion for achieving each objective was a correct response for at least three of four items. Overall, there were thirty objectives and a total of 120 questions on the SHARP test and 72 questions on the TOPICS test. The criterion for passing the total test was set at 70 percent or 84 of the 120 items in SHARP or 50 of the 72 items in TOPICS.

Table 3

Summary Data Of SHARP Results

	Number of Students	% of Students
Students passing at the 70% level of understanding (84 correct responses out of total of 120)	1,494	90.2%
Students NOT passing; scoring below the 70% level	162	9.8%
TOTAL number of students in sample	1,656	

Table 4

Summary Data of TOPICS Results

	Number of Students	% of Students
Students passing at 70% level of understanding (56 correct responses out of a total of 72)	1306	75.1%
Students NOT passing: scoring below the 70% level	435	24.9%
Total Number of Students	1739	

Figure 10

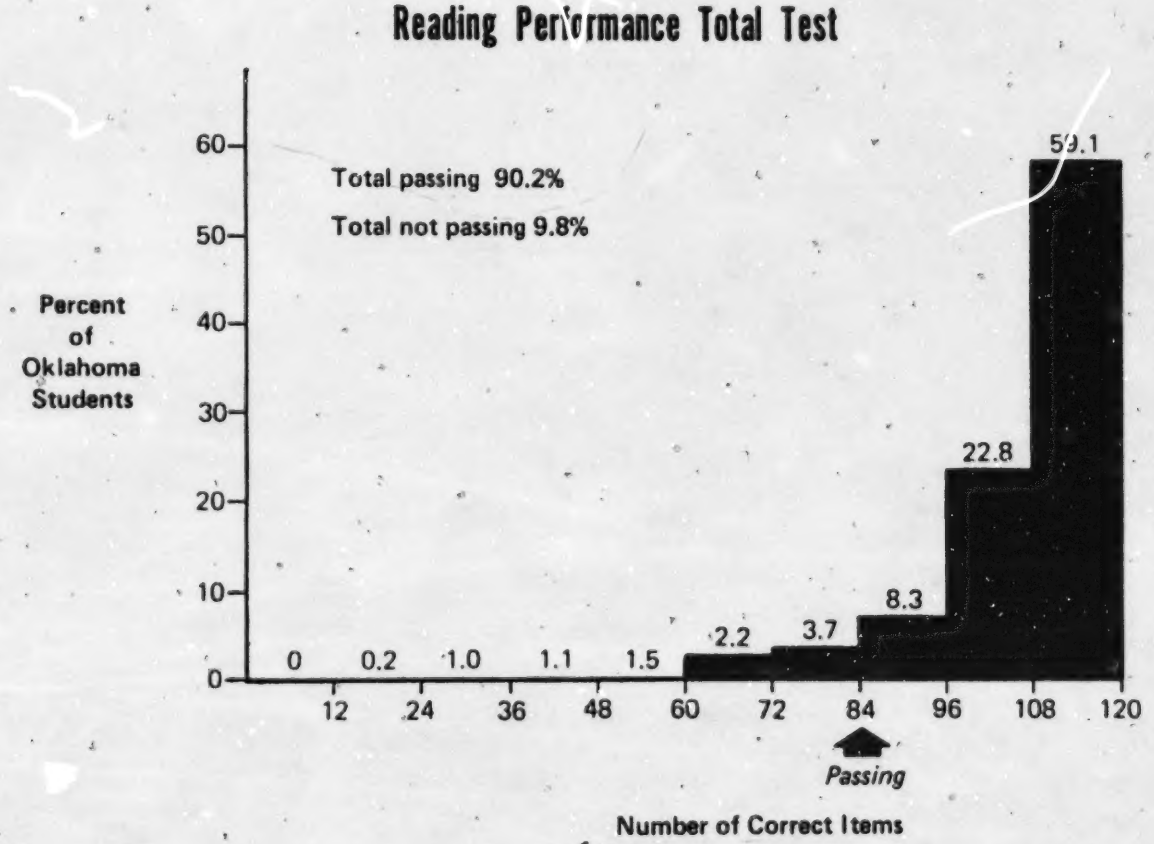

Figure 11

Mathematics Performance Total Test

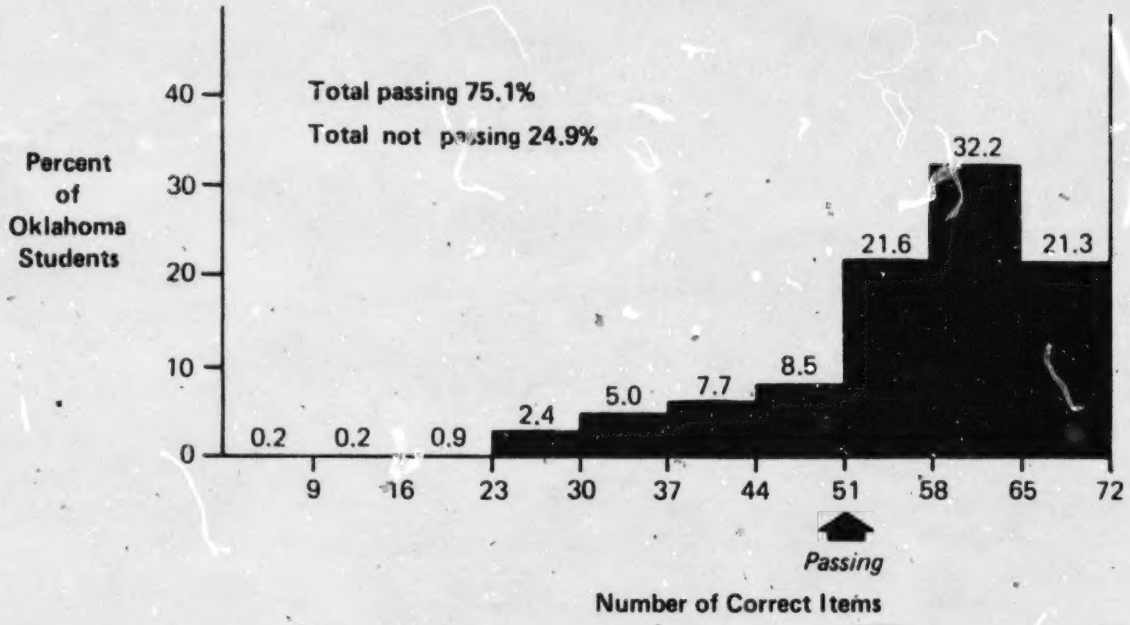

Table 5

SHARP Subtest Results

	High and Low Scores	Average Score
Section I	40-4	35.8
Section II	40-1	35.2
Section III	40-2	33.9
Total Test	120-16	101.7

Table 6

TOPICS Subtest Results

	High and Low Scores	Average Score
Section I	36-1	29.2
Section II	36-2	26.1
Total Test	72-5	55.2

Table 7

Analysis of SHARP Enabling Skills

Skills	Average Score expressed as percent
Literal Comprehension (Main Idea, Details)	91.6%
Interpretive Comprehension (Classifying Information, Sequence, Cause/Effect)	91.8%
Critical Comprehension (Inference, Compare/Contrast, Relevant/Irrelevant, Drawing Conclusions)	86.8%
Location/Study Skills (Directions, Sources of Information, Pictorial Representations)	90.7%

Table 8

Analysis of TOPICS Enabling Skills

Skills	Average Score expressed as percent
Addition (Whole numbers, decimals)	85.7%
Subtraction (Whole numbers, decimals)	85.7%
Multiplication (Whole numbers, fractions, decimals,	88.9%
Division (Whole numbers, decimals)	100%
Multiple Operations (Whole numbers, mixed numbers, decimals)	81.3%
Measurement (Area, perimeter, length, temperature, time, weight)	82.4%
Other Skills (Identify process, bar graphs, ratio, proportion, percent, scale conversion, pricing)	83.3%

CONCLUSIONS FOR GRADE TWELVE

Both SHARP and TOPICS are minimal competency tests and do not have national norms. Therefore, it is impossible to compare data from these tests with results from tests, responses to test items indicated either mastery or non-mastery and, therefore, cannot be interpreted to indicate that students in Oklahoma achieve more or less than a national norm.

1. Approximately 90 percent of the students in the sample achieved at or above the 70 percent mastery level on the SHARP test.

2. Approximately 10 percent of the students in the sample did not attain mastery at the 70 percent level on the SHARP test.

3. Approximately 75 percent of the students in the sample achieved at or above the 70 percent level on the TOPICS test.

4. Approximately 25 percent of the students in the sample did not attain mastery at the 70 percent level on the TOPICS test.

5. In the analysis of the enabling skills for SHARP, the skill area with the lowest percentage of correct responses was Critical Comprehension. This skill area includes the thinking skills of making inferences, comparing/contrasting, distinguishing between relevant and irrelevant information, and drawing conslusions.

6. On TOPICS, the average scores were higher on the enabling skills of addition, subtraction, multiplication, and division than on the skills of using multiple operations, using measurements, and such skills as using ratio and proportion, bar graphs, and scale conversions.

7. Although scores on SHARP and TOPICS cannot be compared directly, it is clear that a larger percentage of the students in the sample achieved mastery at the 70 percent level on SHARP than on TOPICS.

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